UC-7420/7410
Quick Installation Guide

Third Edition, November 2005

1. Overview

MOXA UC-7420/7410 features eight RS-232/422/485 serial ports, dual 10/100 Mbps Ethernet ports, PCMCIA, and a CompactFlash interface for wireless LAN communication and flash disk expansion, making UC-7420/7410 ideal for your embedded applications.

2. Package Checklist

Before installing UC-7420/7410, verify that the package contains the following items:

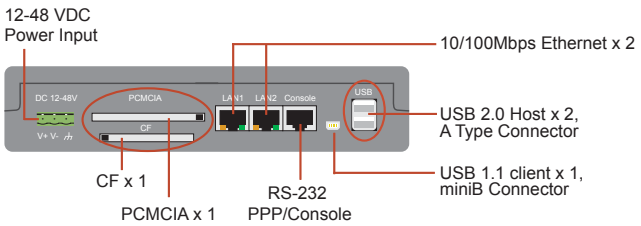
- 1 UC-7410 or UC-7420
- Wall-Mounting Kit
- DIN-Rail Mounting Kit
- UC-7420/7410 Quick Installation Guide (this guide)
- UC-7420/7410 Documentation & Software CD
- Cross-over Ethernet cable
- CBL-RJ45M9-150: 150 cm, 8-pin RJ45 to Male DB9 serial port cable
- CBL-RJ45F9-150: 150 cm, 8-pin RJ45 to Female DB9 console port cable
- Universal Power Adaptor
- Product Warranty Booklet

Notify your sales representative if any of the above items is missing or damaged.

3. UC-7420/7410 Panel Layout

NOTE: UC-7420 (shown in the figures) has a CF slot, PCMCIA slot, and two USB 2.0 Host ports (circled below). UC-7410 does NOT have these three features.

Rear View



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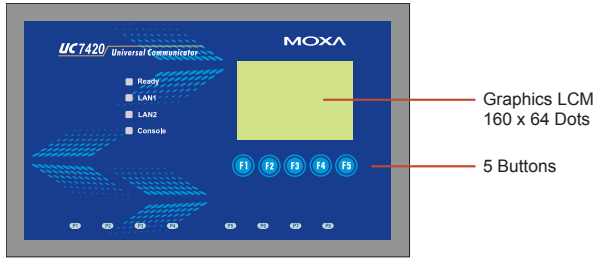
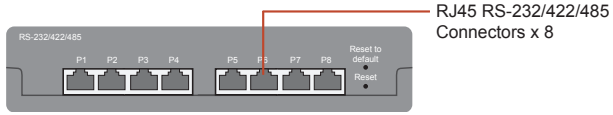
Top View



Front View



4. Installing UC-7420/7410

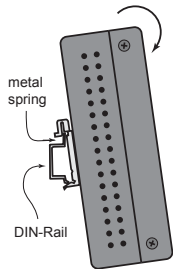
Wall or Cabinet

The two metal brackets included with UC-7420/7410 can be used to attach it to a wall, or the inside of a cabinet. Using two screws per bracket, first attach the brackets to the bottom of the UC-7420/7410. Next, use two screws per bracket to attach the UC-7420/7410 to a wall or cabinet.

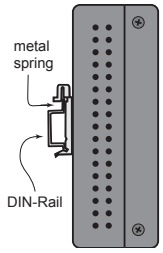
DIN-Rail Mounting

The aluminum DIN-Rail attachment plate is included in the package. To attach the plate to UC-7420/7410, situate the stiff metal spring towards the top.

STEP 1: Insert the top of the DIN-Rail into the slot just below the stiff metal spring.



STEP 2: The DIN-Rail attachment unit will snap into place as shown below.



To remove UC-7420/7410 from the DIN-Rail, simply reverse Steps 1 and 2 above.

5. Connector Description

Power Connector

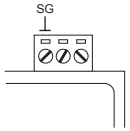
Connect the 12-48 VDC power line to UC-7420/7410's terminal block. If the power is properly supplied, the Ready LED will show a solid green color when the OS is ready.

Grounding UC-7420/7410

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting the power.

ATTENTION

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel.

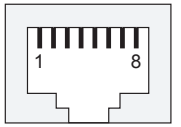


SG: The Shielded Ground (sometimes called Protected Ground) contact is the left most contact of the 3-pin power terminal block connector when viewed from the angle shown here. Connect the SG wire to an appropriate grounded metal surface.

Ethernet Port

The two 10/100 Mbps Ethernet ports (LAN 1 and LAN 2) use RJ45 connectors.

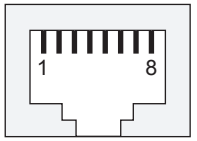
Pin	Signal
1	ETx+
2	ETx-
3	ERx+
6	ERx-



Serial Port

The eight serial ports (P1 to P8) use RJ45 connectors. Each port can be configured by software as RS-232, RS-422, or RS-485. The pin assignments are shown in the following table:

Pin	RS-232	RS-422	RS-485
1	DSR	---	---
2	RTS	TXD+	---
3	GND	GND	GND
4	TXD	TXD-	---
5	RXD	RXD+	Data+
6	DCD	RXD-	Data-
7	CTS	---	---
8	DTR	---	---



PCMCIA

The PCMCIA slot supports the CardBus (Card-32) Card standard and 16-bit (PCMCIA 2.1/JEIDA 4.2) Card standard. It supports +3.3V, +5V, and +12V at a working voltage of 120 mA. Wireless LAN card expansion is optional. The Wireless LAN card provided by Moxa lets you connect UC-7420/7410 to a Wireless LAN, with both 802.11b and 802.11g interfaces supported.

CompactFlash

UC-7420 provides one CompactFlash slot that supports CompactFlash type I/II card expansion. Currently, Moxa provides a CompactFlash disk for plug & play expansion. You may also use flash disks available from most computer supply outlets. The CompactFlash will be mounted at **/mnt/hda**

Console Port

The console port is an RJ45 RS-232 port. It can be connected to a V90 or GPRS modem via PPP. The pin definitions are the same as for the eight serial ports (P1 to P8).

Reset to Default Button

Press the "Reset to Default" button continuously for at least 5 seconds to load the factory default configuration. After the factory default configuration has been loaded, the system will reboot automatically. The Ready LED will blink on and off for the first 5 seconds, and then maintain a steady glow once the system has rebooted.

Reset Button

Press the "Reset" button to activate the hardware reset function. You should only use this function if the software does not function properly. To reset a Linux system, you should reboot the operating system to avoid deleting important data.

LCM & Keypad

UC-7420/7410 Series has an LCM screen and five input buttons on the top panel. Refer to the Moxa Device API for programming information.

The LCM can display 16 columns and 8 rows of text with ASCII code starting from 0x20 to 0x7F. The function of the five keypad buttons can be defined by your application.

USB

The USB 2.0 Host port now supports a USB storage device driver. The USB 1.1 Client port is reserved for future enhancement.

Real Time Clock

UC-7420/7410's real time clock is powered by a lithium battery. We strongly recommend that you do not replace the lithium battery without help from a qualified Moxa support engineer. If you need to change the battery, contact the Moxa RMA service team.

ATTENTION

There is a risk of explosion if the battery is replaced by an incorrect type.

6. Powering on UC-7420/7410

To power on UC-7420/7410, connect the "terminal block to power jack converter" to the UC-7420/7410's DC terminal block (located on the left back panel), and then connect the power adaptor. Note that the Shielded Ground wire should be connected to the right most pin of the terminal block. It takes about 30 seconds for the system to boot up. Once the system is ready, the Ready LED will light up, and UC-7420/7410's network settings will appear on the LCM display.

7. Connecting UC-7420/7410 to a PC

There are two ways to connect UC-7420/7410 to a PC, through the serial console port or by Telnet over the network. The COM settings for the serial console port are: **Baud rate=115200 bps**, **Parity=None**, **Data bits=8**, **Stop bits =1**, **Flow Control=None**.

ATTENTION

Remember to choose the "VT100" terminal type. Use the CBL-RJ45F9-150 cable included with the product to connect a PC to UC-7420/7410's serial console port.

To use Telnet you will need to know UC-7420/7410's IP address and netmask. The default LAN settings are shown below. For first-time configuration, you may find it convenient to use a cross-over Ethernet cable to connect directly from the PC to the UC-7420/7410.

	Default IP Address	Netmask
LAN 1	192.168.3.127	255.255.255.0
LAN 2	192.168.4.127	255.255.255.0

Once the UC-7420/7410 is powered on, the Ready LED will light up, and a login page will open. Use the following default Login name and Password to proceed.

Login: root
Password: root

8. Configuring the Ethernet Interface

If you use the console cable for first-time configuration of the Network settings, use the following commands to edit the **interfaces** file:

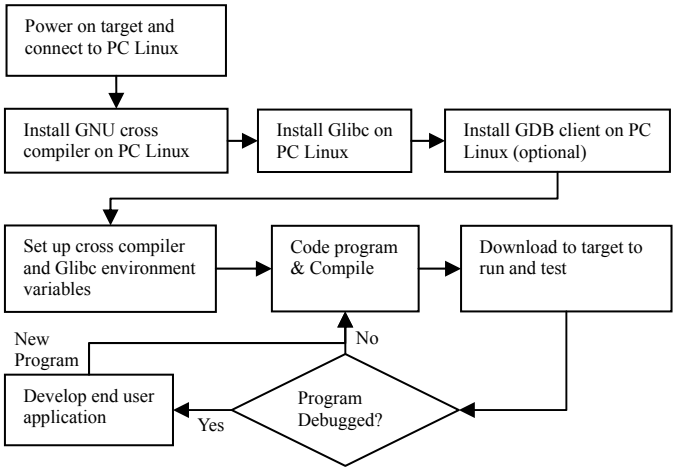
```
#ifdown -a
  //Disable LAN1/LAN2 interface first, before you
  reconfigure the LAN settings. LAN 1 = ixp0, LAN 2= ixp1//
#vi /etc/network/interfaces
  //check the LAN interface first//
```

After the boot setting of the LAN interface has been modified, use the following commands to activate the LAN settings immediately:

```
#sync ; ifup -a
```

NOTE: Refer to the UC-7420/7410 User's Manual for information on how to configure the WLAN interface, and other configuration information..

9. Developing Your Application


Power on target and connect to PC Linux
Install GNU cross compiler on PC Linux
Install Glibc on PC Linux
Install GDB client on PC Linux (optional)
Set up cross compiler and Glibc environment variables
Code program & Compile
Download to target to run and test
New Program
No
Develop end user application
Yes
Program Debugged?

10. Installing the UC-7420/7410 Tool Chain

The PC must have the Linux Operating System pre-installed to install the UC-7420/7410 GNU Tool Chain. Redhat 7.3/8.0, or Linux Kernel 2.4.18 and compatible versions are recommended. The Tool Chain will use about 400 MB of your PC's hard disk space. Use the following command to install the Tool Chain from the UC-7420/7410 CD:

```
#mount /dev/cdrom /mnt/cdrom
#rpm -ivh /mnt/cdrom/mxscaleb-3.3.2-6.i386.rpm
```

The Tool Chain will be installed on your PC automatically.

11. Compiling and Running Hello.c

The path to the Tool Chain is:

```
PATH=/usr/local/mxscaleb/bin:$PATH
```

The UC-7420/7410 CD also includes several example programs. Here we use **Hello.c** as an example to show you how to compile and run your applications. Type the following commands on your PC:

```
# cd /tmp/
# mkdir example
# cp -r /mnt/cdrom/example/* /tmp/example
```

Next, go to the **Hello** subdirectory and type the following command:

```
#make
```

to finish compiling **Hello.c**.

Finally, run the executable file that was created to generate **hello-release** and **hello-debug**.

NOTE: Moxa also provides the Windows Tool Chain for UC-7420/7410. The Windows Tool Chain simulates a Linux environment on a Windows operating system, allowing you to develop programs for UC-7420/7410 on a Windows platform. The UC-7420/7410 User's Manual contains complete details on how to install the Windows Tool Chain.

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